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ON  
COD-LIVER OIL  
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CHAPMAN  
ON  
PYROPHOSPHATE OF IRON

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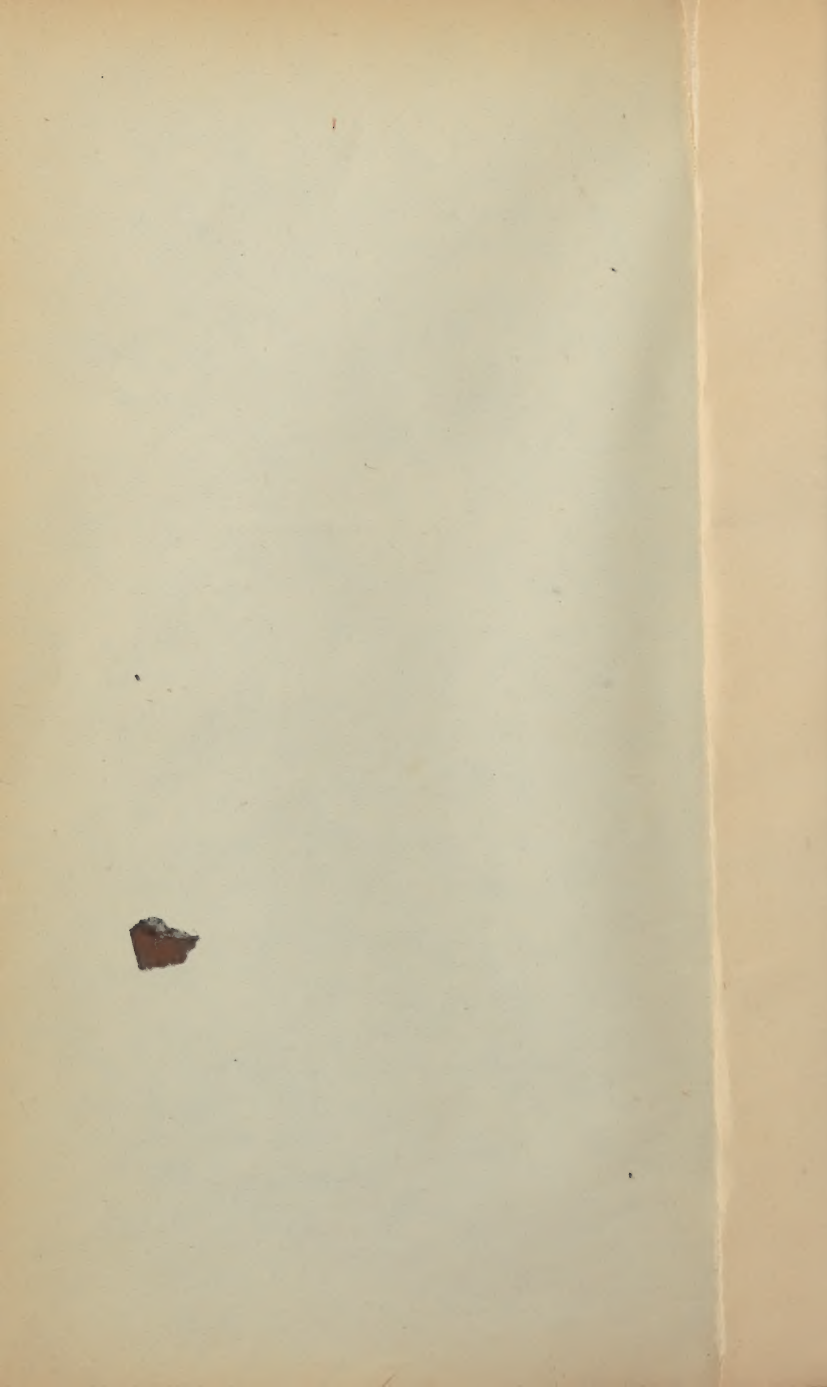
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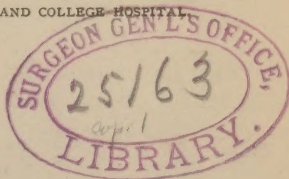
ON THE  
HISTORY AND USES  
OF  
COD-LIVER OIL  
IN  
PULMONARY CONSUMPTION,  
AND OTHER DISEASES.

BY  
WILLIAM ARGYLE WATSON, M.D.;  
WITH OPINIONS THEREON FROM THE MOST EMINENT  
PHYSICIANS OF EUROPE AND AMERICA

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ALSO,  
NOTES ON THE VALUE  
OF  
PYROPHOSPHATE OF IRON  
IN  
ANÆMIA, CHLOROSIS, DEBILITY, ETC. ETC.

BY  
F. N. CHAPMAN, M.D.,  
PROFESSOR OF THERAPEUTICS AND MATERIA MEDICA, PROFESSOR OF CLINICAL  
OBSTETRICS, AND PHYSICIAN IN THE LONG ISLAND COLLEGE HOSPITAL.



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ON  
COD-LIVER OIL.

BY

WILLIAM ARGYLE WATSON, M.D.

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IF the concurrent testimony of the most eminent medical writers, and the verdict of popular usage, can be relied on, no remedy, nor any combination of remedies, has heretofore done so much toward restoring health and strength to the victims of tubercular consumption, and other forms of scrofulous disease, as the oil obtained from the liver of cod-fish, (*Gadus Morrhua*.)

ITS HISTORY.

Cod-liver oil seems to have been used in Germany from a remote period as a domestic remedy in various forms of disease, but was first introduced into the Materia Medica by Dr. Percival, of London, in 1771, as a remedy for chronic rheumatism. After enjoying a short-lived season of favor in the hospitals, it fell into disuse, until 1841, when Dr. J. H. Bennett, of London, published a treatise on *Oleum Fecoris Aselli*, in which he

set forth its great value as a remedy in tubercular disease. Since that date it has been steadily gaining professional and popular favor, until it has come to be regarded as the remedy *par excellence* in all forms of scrofulous disease.

#### ITS CONSTITUENTS.

Dr. Garrod's chemical analysis of cod-liver oil shows it to contain *oleine*, *margarine*, various *biliary principles*, as the organic acids and coloring matter of bile; also *phosphoric* and *sulphuric acid*, with salts of *lime*, *magnesia*, and *iron*; a peculiar substance—*gaduin*—very insoluble in ordinary menstrua, but soluble in sulphuric acid, and giving a blood-red color to the solution; also *iodine* and *bromine*.

#### CRITERION FOR THE PURITY OF LIVER-OILS.

There is, unfortunately, no test for the purity of cod-liver oil. The nearest approach to it is a test for liver-oils in general, which are found to yield a beautiful lake or crimson color when brought in contact with sulphuric acid. This is supposed to be due to the action of the acid on the biliary matters contained in the oil. The only value of this test is to distinguish liver-oil from that procured from other parts of the animal, as it reacts equally on good and bad cod-liver oil, and on the oil obtained from the livers of other fish. The only fish-liver oil likely to be mistaken for cod-liver oil, is that procured from the livers of the pollock, hake, and haddock.

These fish are caught in large quantities on the New-England coast, from spring to autumn, when cod-fish are scarce, the season for the latter being from November to June. It is estimated that three haddock to one cod are taken the year through in Massachusetts Bay, and the oil obtained from their livers, as well as from all the hake and pollock caught, is sold under the name of cod-liver oil, though greatly inferior in medicinal and other qualities.

It becomes, therefore, a matter of importance to be able to distinguish pure cod-liver oil from these inferior liver-oils; but as there is no chemical test to guide us, it can only be done by a careful study of their sensible properties, which reveal slight differences in taste and smell, and more marked differences in density, cod-liver oil being much more dense than any of the other oils under consideration. Another marked difference in the oils, is in their affinity for oxygen—the inferior varieties of liver-oil being much more prone to absorb oxygen and turn sour or rancid.

It might be supposed, *a priori*, that fish belonging to the same family, and caught in the same waters, would be found to yield liver-oil of similar properties, but that this is not the case is evident from the fact that curriers, who use large quantities of cod-liver oil in dressing leather, can not utilize the lighter and thinner liver-oils for the same purposes, as they will not “stuff” the leather, and render it permanently soft and pliable.

When, however, it is known that cod-fish are caught in cold weather and on rocky bottom, and hake, haddock, and pollock in warm weather, on muddy bottom, and that they have preferences for different kinds of food, it does not seem unaccountable that their livers should yield oil of dissimilar properties. Shark-liver oil closely resembles cod-liver oil, and is said to be of equal efficacy as a therapeutic agent.

#### VARIETIES.

There are three varieties of cod-liver oil met with in the market, namely, the pale, light brown, and dark brown. The different sensible properties of the oil depend upon the manner in which it is obtained from the livers, their state of freshness or otherwise, and the degree of exposure to the air in its preparation. The pale oil is prepared from fresh livers by the simplest possible process by which it can be separated from the cells of the livers; it is nearly devoid of color, odor, and flavor, having only a bland, fish-like, and, to most persons, not unpleasant taste. The darker oils are prepared from livers in a state of putrefaction, or with sufficient heat and pressure to decompose and extract the biliary matters; they have a "very ancient and fish-like smell," and an intensely disagreeable taste.

### THE PALE OIL IS SUPERIOR.

Of the different varieties of the oil, there can be no question as to which is the most valuable as a therapeutic agent, as the whole experience of the medical profession declares in favor of the pale oil. The dark oil is apt to turn the stomach, irritate the bowels, and, if long continued, destroy the appetite and seriously impair the digestive powers. On commencing the use of the pale oil, it not unfrequently disagrees with a delicate stomach, when after a few doses it is tolerated and even relished. The longer it is taken, the better it is liked, "as if increase of appetite had grown by what it fed on." Dr. De Jongh, however, advocates the use of the dark varieties, on the ground that they contain more volatile acids (butyric and acetic acids) and biliary matters, though he makes no mention of these acids in his analysis of the light-brown oil, which he recommends; and it is sufficiently obvious that any additional medicinal virtues which the biliary matters may impart to the oil, are more than counterbalanced by the disturbance which they create in the digestive organs; for in all exhausting forms of disease which feed on the very pith of life, it should be remembered that only "good digestion waits on appetite, and health on both."

### MANNER OF ADMINISTRATION.

Where the pale oil is objected to on account of its taste, it may be disguised by either of the following



methods: 1, by giving it on orange or lemon juice; 2, by taking it floating on ale or porter, or with a small quantity of whisky or brandy; 3, by adding to each dose a few drops of dilute nitric acid, with an equal amount of tinct. cardam. comp.; 4, in emulsion with confection of almonds; 5, by chewing a small piece of smoked herring, or some aromatic substance like lemon-peel, just before swallowing each dose.

It has been recommended to administer it in the form of pills and in capsules, but both these methods are obviously impracticable on account of the large doses in which it ought to be taken.

The oil not unfrequently disagrees in consequence of an enfeebled and deranged state of the stomach, liver, and bowels; and where this is found to be the case, a little preparatory tonic and alterative treatment should precede its administration. Thus, if the patient is suffering from anæmia, constipation of the bowels, loss of appetite, and experiences great disgust at swallowing the oil, and either rejects it or complains of subsequent eructations, it had better be discontinued, and some such tonic as the following substituted for a few days:

℞. Ferri pyrophos., 3 ijss.

Strychniæ, gr., (one.)

Acid. phos. dil., ʒ j.

Aquæ distil., ʒ iiij.

Ft. sol. S. A.

A teaspoonful of this combination before each meal, aided by an aloetic pill at night, will, after a few days, not unfrequently so far invigorate the digestive organs as to enable them to receive and assimilate the oil which they had before been unable to manage.

In some cases, however, the system seems to have lost the power of digesting fatty matter ; for in spite of all our efforts to prevent it, the oil will be either rejected by the stomach, or run through the bowels in an unaltered state. It is an interesting fact, that in fatal cases of this kind, post-mortem examinations have revealed extensive disease of the pancreas, an organ which, it is well-known, plays an important part in the digestion of fat. Dr. Dobell, of London, has suggested that the defective power of assimilating fat is owing to want of pancreatic fluid, and may be remedied by the administration of an emulsion of fat or oil with the pancreatic fluid of the pig. After much experience in the use of this emulsion, Dr. Dobell asserts that persons who can not digest fatty matter in any other form, can take this preparation with perfect ease, and that under its use the strength and weight of the patient improve to such an extent as to render it certain that the digestive organs have been able to appropriate the necessary amount of fat. If Dr. Dobell's preparation should prove equally successful in other hands, upon more enlarged trials, it will prove to be a most valuable contribution to that class of cases in which the plain oil disagrees or can not

be taken. Messrs. Savory & Moore, London chemists, manufacture the emulsion as prescribed by Dr. Dobell. We are not aware of its having been prepared in this country, but Messrs. Caswell, Hazard & Co., of this city, have imported the London article. As the cost of importation is so great, we trust some enterprising and reliable American chemist will furnish the profession with "pancreatic emulsion" of his own production. In the swine-killing regions of the West, pancreatic fluid might be obtained in great abundance at little cost.

#### DIRECTIONS FOR TAKING COD-LIVER OIL.

The dose of cod-liver oil, when it agrees, should be a tablespoonful three times a day. The best time to take it is before going to bed at night, and, during the day, an hour after each meal, in order that it may be digested with the food. If given before meals, it is apt to blunt the appetite. Where the stomach is delicate, it is best to commence with a teaspoonful, and gradually increase the dose as the stomach gets accustomed to it. When patients become fond of it, they often thrive on much larger doses, though it is not advisable to give more than an ounce three times a day, as that is as much as the digestive and assimilative powers are competent to utilize.

## ENDERMIC USE OF COD-LIVER OIL.

Dr. Simpson, of Edinburgh, recommends the endermic method of introducing the oil into the system. Several cases have been published in which inunction has proved of great service, either as a supplementary measure, or where the oil signally disagreed with the stomach. Dr. W. H. Fuller, of London, mentions a case in which "the patient gained a stone and a half in weight in less than three months under the persevering use of inunction, and the physical signs subsided greatly at the same time."

It has been urged in favor of inunction, that persons engaged in wool factories, tallow chandlers, butchers, and others whose pursuits keep their skin constantly more or less smeared with fatty matter, are remarkably well supplied with adipose tissue, and seldom fall victims to tubercular consumption. It may well be presumed, however, that persons engaging in these greasy and repulsive vocations have naturally good stomachs, and get their fat rather through the digestive organs than the skin. Indeed, it will be found that most very fat persons, like the greasy knight, Sir John Falstaff, are thirsty souls, with unbounded stomachs, and much accustomed to "unbuttoning after supper." When the digestive organs can not be made to assimilate the oil, inunction should be resorted to as a means of introducing it into the system ; and in other cases it may be em-

ployed for the benefit of the process itself, which, by exciting the functional activity of the skin and determining the fluids to the surface, tends greatly to the relief and cure of disease in the internal organs. In order to derive full benefit from inunction, the patient should be well rubbed, for half an hour, morning and evening, with warm oil and a warm hand, before a fire. This may seem a disgusting process, but as it was resorted to by the ancient Romans as a hygienic luxury, it may not be found past endurance when required for the cure of disease.

#### INTRODUCTION PER RECTUM.

Another device for introducing the oil is *per rectum*; but as this is so objectionable a method to most persons, it will not probably be often submitted to, except as a temporary expedient to sustain the patient when the stomach can not retain the oil, and too great feebleness forbids the fatiguing process of inunction. These supplementary methods of introducing the oil ought not to be despised, for we should not forget that sometimes "most poor means point to rich ends," and that to the sick, what is homely becomes savory, when regarded as a means of restoring health.

#### WHEN IT SHOULD BE GIVEN.

In order to derive the highest possible degree of benefit from the use of cod-liver oil in pulmonary con-



sumption, it should be given at the very earliest manifestation of the disease, and continued long after the apparent restoration of health. When thus resorted to, in the "very riping of the time," before the reparative power of the system has been impaired, and faithfully continued for months, or even years, it will in many cases completely subvert the constitutional vice, upon which the deposit of tubercular matter depends, and thus establish permanent curative results. When given in the more advanced stages of the disease, after the tubercles have softened and been removed by expectoration, it often seems to arrest the further deposit of tubercular matter, and in a wonderful degree to renew the flesh and strength of the patient and prolong life. These beneficial results, however, must not be expected from a few doses of the oil: they can only be obtained from its systematic and faithful administration for months or years (with an occasional short respite) as an article of daily food.

#### ITS VALUE IN PHTHISIS.

This assertion of its great power in arresting the destructive march of phthisis, is borne out by the general experience of the profession in this and foreign countries. Dr. C. B. Williams, of London, closes a valuable report which he made of 234 cases of pulmonary consumption treated with cod-liver oil, by observing that

“pure, fresh oil from the liver of the cod is more beneficial in the treatment of pulmonary consumption than any agent—medicinal, dietetic, or regiminal—that has yet been employed.” Most practitioners who have had large opportunities of observing its effects, are equally enthusiastic in commending its virtues. Among those speaking with most authority upon this subject, may be mentioned the names of Dr. John Hughes Bennett, of Edinburgh; Sir Thomas Watson, Dr. William Henry Fuller, Dr. Thomas King Chambers, of London, and Dr. George B. Wood, of Philadelphia, who are united in ascribing to the oil invaluable properties as a therapeutic agent in the class of diseases under consideration. These eminent writers have commented fully upon all points of interest in relation to the administration of the oil and its *modus operandi*. Those who would inquire more curiously into the subject, will find it fully discussed in their respective works, under the head of “Phthisis Pulmonalis.”

#### ITS VALUE IN SCROFULA

The oil will be found equally effectual in scrofulous affections of the skin and bones, as caries, lumbar abscess, rachitis, morbus coxarius, in scrofulous ophthalmia, tabes mesenterica, and, in short, in all affections dependent upon a scrofulous constitutional taint, or attended with emaciation and malassimilation of food.

In all cases, however, to be effectual, it must be given in full doses and long persevered in.

### ITS USE IN SYPHILIS.

In secondary syphilis, occurring in weak and anæmic subjects, cod-liver oil is a valuable adjuvant to the mercurial treatment, as it tends in some measure to obviate the destructive action of mercury on the already too much impoverished blood. It may be given in these cases in combination with the bichloride of mercury, after the following formula :

℞. Hydr. bichloridi, gr. ij.

Æther. sulphurici, ʒj.

Ft. sol. et adde,

Olei morrhuæ, ʒvj.

A dessert-spoonful, containing one twelfth of a grain of the bichloride, may be given three times a day. The bottle should be kept tightly corked, for, if exposed to the air, the mercury will be precipitated in consequence of the evaporation of the æther.

## OPINIONS

OF SOME OF THE MOST EMINENT MEDICAL WRITERS  
ON THE VALUE OF COD-LIVER OIL IN PULMONARY  
CONSUMPTION.

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### DR. BENNETT'S TESTIMONY AS TO ITS USE IN PUL- MONARY CONSUMPTION.

Dr. John Hughes Bennett, Professor of the Institutes of Medicine in the University of Edinburgh, who first introduced cod-liver oil to the notice of the profession in England as a remedy in pulmonary consumption, in 1841, thus writes of it in the last edition of his work on the *Practice of Medicine*, published in 1865, after more than twenty-five years' extensive observation of its effects in that disease :

"Since I first introduced cod-liver oil to the notice of the profession in this country as a remedy for phthisis, in 1841, I have continually prescribed it in hospital, dispensary, and private practice. I need not, perhaps, say that I have given it in a very large number of cases, and have observed its effects in all the stages of the disease, and under almost every circumstance of age, sex, and condition. I have had the most extensive opportunities

of examining the bodies of those who have died after taking it in considerable quantities, and am still observing the cases of many persons who may be said to have owed their lives to its employment. Further, I have carefully watched the progress it has made in the good opinion of the professional public, and perused all that has been published regarding it in the literature of this and other countries. It were certainly easy for me, therefore, to write at great length on this subject; but I do not see that any thing of utility could be added to what I have already published. The following is a summary of my views regarding cod-liver oil as a remedy in phthisis:

“1. Cod-liver oil is, as pointed out by M. Taufflied, an ANALEPTIC, and is indicated in all cases of abnormal nutrition, dependent on want of assimilation of fatty matter.

“2. It is readily digestible under circumstances where no other kind of animal food can be taken in sufficient quantity to furnish the tissues with a proper amount of fatty material.

“3. It operates by combining with the excess of albuminous constituents of the chyme, and forming in the villi and terminal lacteals those elementary molecules of which the chyle is originally composed.

“4. Its effects in phthisis are to nourish the body, which increases in bulk and vigor; to check fresh exu-



dations of tubercular matter, and to diminish the cough, expectoration, and perspiration.

“5. The common dose for an adult is a table-spoonful three times a day, which may often be increased to four, or even six, with advantage. When the stomach is irritable, however, the dose to commence with should be a tea or dessert-spoonful.”

#### TESTIMONY OF DR. GEORGE B. WOOD.

Dr. George B. Wood, Emeritus Professor of the Practice of Medicine in the University of Pennsylvania, in a late edition of his work on the *Practice of Medicine*, thus speaks of cod-liver oil as a remedy in pulmonary consumption :

“Of the medicines used in phthisis no one, nor any combination of them, has hitherto proved so efficient as cod-liver oil. When the second edition of this work was published, the experience of the author had not been favorable to that remedy ; but this was simply because he had not persevered with it a sufficient length of time in the several cases in which it was employed. The oil seldom produces any very observable effects under a period of from three to six weeks ; and despairing of any good result, he had in every instance omitted it too soon. Subsequent experience has convinced him of its inestimable value. For the last five years he has used it in nearly every case of phthisis which has come under

his notice, either in private or hospital practice, and almost always, when it could be retained on the stomach, with either temporary or lasting benefit. His experience coincides generally with that of the writers who have testified favorably of its effects. In the worst cases and most advanced stages, it usually improves the condition of the patient, renders him more comfortable, and postpones the fatal issue. Under less desperate circumstances, it often arrests for a time the march of the disease, giving hopes even of ultimate recovery ; and in some few instances these hopes are justified by the result, so far as time has hitherto enabled us to judge. Given at the first appearance of the symptoms, I have frequently found it to set them aside altogether, and believe that, with the aid of other suitable remedies, it is capable of effecting permanent cures in many instances. Its observable effects are usually to improve the digestion, to render the patient fatter and stronger, to diminish the frequency of the pulse and check the sweats at night, to relieve the cough, and, in fine, greatly to ameliorate all the general symptoms. The patient often becomes fleshy, exchanges his paleness for a ruddy or healthy color, and feels himself nearly if not quite well. Unhappily, the physical signs do not generally undergo the same rapid improvement. If there was evidence of considerable solid deposit, this goes on to softening and the formation of a cavity ; if there was a cavity at the commencement of the treatment, this not unfrequently en-

larges while others form ; and after a period of very flattering amendment, perhaps for months, perhaps for a year or more, the symptoms return, and the patient too often sinks at last. Yet it is not always so. Sometimes suspicious physical signs in the early stages entirely disappear, and cavities either remain stationary or heal. The following, so far as I am capable of judging from my own observation and the recorded experience of others, appears to be the real value of the remedy : It does not act as a specific, and is wholly incapable of producing, by any direct influence of its own, the removal of the deposited tuberculous matter. But it invigorates the digestion, improves the character of the blood, and by a peculiar power modifies the nutritive processes, so as to obviate, in a greater or less degree, the tendency to the deposition of tuberculous matter. When this tendency is not very strong, and other suitable measures are made to coöperate with the oil, it appears capable of arresting the further formation of tubercles altogether. But the matter deposited must pass through its own destined changes. If small in quantity, as in the earliest stage of the disease, it may undergo the calcareous metamorphosis, and thus cease to do harm. If larger, it must soften and be discharged, leaving a cavity, which may heal if not increased by further accessions of tubercle. If abundant, it must undergo the same change, and then must necessarily prove fatal, should so much of the lung be destroyed in the process

as to render the remainder insufficient to fulfill the purposes of respiration, or should the strength be inadequate to support the exhausting effects of the necessary irritation and suppuration.

“It is seen, therefore, that cod-liver oil, though a very valuable agent, perhaps the most valuable, should be looked on only as one of the means of confirming the general health, and thus affording the best possible protection against the further progress of the malady, and enabling the system to withstand the depressing and exhausting influences necessarily exerted upon it in the elimination of the tuberculous matter. These views are certainly encouraging, and they would seem to be supported by the fact of the recent diminution of the general mortality from phthisis, as evinced by the statistical reports in the city of Philadelphia, which can be ascribed to no other known cause than the general use of cod-liver oil.

“But great care must be taken to guard against the error of relying on this alone, to the neglect of exercise, exposure to pure air, and the various other methods of invigorating the system already referred to. A tablespoonful of the oil should be given three times a day, and the remedy persevered in for many months, nay, uninterruptedly, even for years, should it continue to agree with the patient and the disease not appear to be sooner eradicated.”

## SIR THOMAS WATSON'S TESTIMONY.

Sir Thomas Watson, of London, in the last edition of his work on the *Practice of Medicine*, thus speaks of cod-liver oil in phthisis :

“The oil obtained from the liver of the cod-fish, a substance formerly thought curative of chronic rheumatism, has of late been extensively administered with unquestionable benefit in strumous disorders, and especially in phthisis. It is not directed against any particular symptom, but appears, in a much greater degree than any other drug that I know of, to be antagonistic of the consuming power of the disease. Unlike many of the oils, it does not generally purge. One of its most obvious and frequent effects is that of hindering the waste of the fatty tissues of the body, and even of promoting, by the excessive supply of that nutriment, a new deposit of adipous matter. The patient recovers flesh and weight, resumes a healthier aspect, and acknowledges sensations of returning strength and comfort. Meanwhile, his cough is mitigated, he expectorates less, his pulse is reduced in frequency, hectic symptoms disappear, and the auscultatory signs declare a corresponding change for the better in the diseased lung. . . . The whole range of morbid changes, denominated tubercular, belongs to the class in which there is an excess of the albuminous and a deficiency of the oleaginous principle. Do we not here obtain some glimpse of the way in



which cod-liver oil may tend to keep in check the strumous disposition? Whatever may be its *modus operandi*, I have often been surprised as well as gratified by the improvement that has followed the use of this remedy in consumptive patients. I believe that the earlier it is resorted to the better ; but in every stage of the disease, its healing power has been fully ascertained. In many advanced cases, it does no good at all ; in some, its restorative effect is really wonderful. The proper dose is from two drachms to half an ounce, three times daily. To avoid the risk of blunting the natural appetite, I am in the habit of directing that the oil be taken at bedtime and soon after each of the two principal meals of the day ; in other words, as long as possible before the meal next ensuing. Of the various kinds of oil in use, that which is the purest, that which is obtained by the simplest methods from the fresh liver of the healthy cod-fish, is not only the least nauseous, but, in my opinion, the most remediate also. It is not so nauseous, patients tell me, as might be supposed."

REMARKS OF DR. THOMAS KING CHAMBERS.

The following interesting remarks upon the value of fatty food are taken from Dr. Thomas King Chambers's last work on *The Indigestions* :

"The effects of cod-liver oil become less and less a marvel the more we know of physiology. The instinc-

tive desire shown by all nations for an oleaginous diet, and their association of substances of this nature with proverbial ideas of happiness in all ages, show the value of a certain amount of it to man's comfort.

"The 'butter and honey' of the Prophet, used as a phrase for royal food, and the constant reference in the Bible to oil as a luxury, (though it could have been no rarity in 'a land of olive-oil,') these are sufficient to prove its estimation among the Hebrews. The Hindoo laborer, when he devours his gallon of rice for a meal, will spend all the pice he can get on the clarified butter of the country, and 'as good as ghee!' is his expression of unqualified admiration. It was a mistake in Baron Liebig to state that oily foods are disgustful to natives of hot climates. All races of men require and seek after them, and the taste of the Esquimaux, so often quoted, depends mainly on the abundant supply of the article which the sea places at his disposal, coupled with a scantiness of other provisions.

"Throughout mankind there is an instinctive appreciation of the importance of this aliment, independent of accidental differences of nation or locality. It seems felt to be, as science shows that it really is, a necessary material for the renewal of the tissues, and the desire for it becomes synonymous with a desire for augmented life.

"An easily assimilated oil comes, in fact, into the short list of directly life-giving articles in the pharmaco-

pœia; for it is itself the material by which life is manifested. Hence, under its use, beneficial influences are exerted throughout the whole body; old wounds and sores heal up; harsh, wrinkled skin regains the beauty of youth; debilitating discharges cease, at the same time that the normal secretions are more copious; the mucous membranes become clear and moist, and are no longer loaded with sticky epithelium; the pulse, too, becomes firmer and slower, that is to say, more powerful, for abnormal quickness here is always a proof of deficient vitality. Such are the effects, perfectly consistent with physiology, of supplying a deficiency of molecular base for interstitial growth.

“But that supply is useless unless the absorbents are fit to take it up—unless they are prepared by proper tonics for its reception.

*“To find the easiest assimilated oil, and to prepare the digestion for the absorption of oil, are the main problems in the cure of consumption.”*

STATEMENT OF DR. W. H. FULLER, OF ST. GEORGE'S  
HOSPITAL.

Dr. William Henry Fuller, Physician to St. George's Hospital, London, in his work on *Diseases of the Lungs*, makes the following remarks on the value of cod-liver oil in pulmonary consumption:

“Cod-liver oil may be regarded partly as an article of

food, and partly as a medicinal agent. To whichever of its constituents its efficacy may be due, *there can not be a doubt that it is beyond all others the remedy on which most reliance can be placed.* Chemistry has hitherto failed to explain its action, but clinical experience leaves not the slightest doubt of its beneficial influence. Of course, its virtues are most strikingly displayed in the earlier stages of the disorder, and in cases where there is not a strong inherited predisposition to tubercular disease; but this fact amounts to nothing more than that where there is little mischief to be overcome, the oil has less difficulty in subduing it than it has when the mischief is deeper seated and more advanced; and, speaking generally, it may be stated that the oil proves serviceable in all ages and at all stages of the disorder. The symptoms and physical signs ameliorate under its administration with a rapidity which is sometimes quite surprising; and in favorable cases the weight of the body increases, the cough and expectoration decrease, the appetite improves, and the night sweats and other unfavorable symptoms gradually disappear.

“Three facts, which have been elicited by careful observation, appear to afford some clue to its mode of action. The first is, that unless the patient gains weight whilst using it, the oil seldom or never proves remedial; the second, that weight and flesh may be gained during its administration, although the pulmonary disease may be steadily progressing; the third, that when it does act

remedially, the weight gained is far beyond what would result from the oil as a mere aliment. Hence it would appear that its operation consists in aiding digestion, by supplying some principle which is essential to the assimilation of food and the establishment of healthy nutrition.

“This view has been uniformly maintained by Dr. Hughes Bennett, who has stated, further, that its efficacy depends on its supplying the fatty matter which is essential to the formation of healthy chyle, and which the digestive organs have become unequal to manufacture or separate from the food. My own impression is, that its influence is not so simple as is here suggested by Dr. Bennett; for, if his views were correct, it ought to act beneficially whenever the stomach is capable of retaining and digesting it, whereas, cases not unfrequently occur in which, though the oil does not disagree, it fails to exercise any influence over the disease, which, nevertheless, may yield to other remedies. Further, the improvement which results from cod-liver oil is not found to follow the use of neat’s-foot oil and other oils which equally supply an oily matter; and as in administering cod-liver oil we are conveying into the system iodine, bromine, phosphorus, and other matters which are known to exercise a powerful influence on the animal economy, I am inclined to believe that the peculiar efficacy of the cod-liver oil depends partly on the supply of oil which it affords, but partly also on its

containing elements which are wanting in most cases of consumption, and which in such cases it satisfactorily supplies; and when it fails to operate remedially, it does so in most instances because it is not tolerated by the stomach, and in others because it does not contain, and therefore does not supply, the elements which in those particular instances are required to promote healthy assimilation. Be this as it may, its extraordinary virtues can not be doubted, and it ought to be administered in all cases of consumption in which it does not derange the stomach. It rarely purges or otherwise disturbs the bowels, and it does not induce congestion of the lungs, or fatty enlargement of the liver or kidneys; on the contrary, it improves nutrition generally throughout the body. Not only does it produce increase of weight, but the patient, whilst taking it, gains strength and color. As a mere aliment it is extremely useful, and as a remedial agent in appropriate cases, its value is inestimable."





THE  
PYROPHOSPHATE OF IRON.

BY

F. N. CHAPMAN, M. D.

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THE following notes on the therapeutic uses and effects of Pyrophosphate of Iron, (which is the salt used in the manufacture of CASWELL, HAZARD & CO.'S FERRO-PHOSPHORATED ELIXIR OF CALISAYA,) were communicated by Dr. E. N. Chapman, Professor of Therapeutics and Materia Medica, of Clinical Obstetrics, and Physician in the Long Island College Hospital, and published in the *Boston Medical and Surgical Journal*:

The Pyrophosphate of Iron affords certain marked advantages over the preparations of iron hitherto in use. Its tastelessness, in solution with sugar, and elegant appearance, in our day, when the nauseous doses of the older practitioners will not be tolerated, is an important item in the case of children, or adults, even, when the employment of a remedy is demanded for a period of time. There is every reason for presenting our medicines in as palatable and pleasant a form as possible.

In addition, there are many persons of a nervous, delicate organization, particularly females, who can not take the ordinary preparations of iron. They disorder the stomach—in their language, are too heating—and thus not only fail to be assimilated, but, by perverting the gastric and intestinal secretions, seriously interfere with the digestion. Hence, instead of enriching the blood by new materials, we are merely cutting off the original supply, imperfect as it is, and making the gastric surfaces a centre of morbid irritation. We observe a similar, but more complete abeyance of the nutritive functions in most patients much reduced by an exhausting disease. However much iron may be indicated, it can not be borne, much less appropriated, by the absorbents, until the digestion is restored by bitters and stimulants.

#### SUPERIORITY OF PYROPHOSPHATE OF IRON TO OTHER FORMS OF IRON.

A marked peculiarity in the pyrophosphate of iron is the fact that it will scarcely ever, in any of these cases, disagree ; and very frequently patients who can not tolerate the ordinary forms of iron, will bear this well, and receive great benefit from its use. The new salt will supply the iron to the blood-globules promptly.

It has, however, another and more important property, which has entirely escaped attention, that adds new virtues to the iron, and bestows on this special compound

advantages possessed by none other in the *Materia Medica*. These arise from the pyrophosphoric acid. This acid, or the element, phosphorus—which has not been definitely determined by chemists—exists alone in a free state in the great ganglionic nervous centres. According to Frémy, the phosphorus is combined with the brain-fat, forming what he calls the oleo-phosphoric acid.

#### PHOSPHORUS AS A REMEDY.

Phosphorus is regarded by therapeutical writers as a cerebral stimulant, exalting nerve-power directly, but the action of the heart indirectly, and only in a moderate degree beyond the normal tension. Of all the organs, the reproductive are most sensibly affected—a fact satisfactorily accounted for in the male by our knowing that the semen contains, according to Kölliker, over two per cent of a phosphorated fat. As throughout nature nothing is without a use, and every element has an importance, though we may fail to discover it; so we may safely conclude that phosphorus must exist in the nervous centres and the spermatic fluid as an integral constituent of their chemical composition. Probably it plays an important part in the normal excitability, and is intimately connected with the manifestation of mind and the generation of the nervous influence.

## EFFECTS OF PHOSPHORIC ACID ON THE SYSTEM.

I think phosphoric acid may not be separated from its compounds, and thus the ganglionic nervous centres be wanting in their normal stimulus. Hence would arise many nervous and neuralgic diseases, and nervous complications in many forms of debility. It is necessary for us to pass the phosphoric acid into the blood. This we can only do by giving it in a saline state, with a base that would be assimilated, and thus set it free. This is accomplished by the iron, which we know, in ordinary medicinal doses, is used up in the blood ; in other words, is appropriated by the hæmatin, and can not be detected by any tests. It is a natural constituent in the red globules, and, consequently, not being foreign to the body, behaves precisely as any other elementary principles that form its structure. Strictly speaking, it is a food, and must be supplied as much as starch, sugar, oils, and flesh.

## INSTANCES REQUIRING ITS USE.

Whenever the blood becomes thin and watery, there are, almost invariably, troublesome attendant symptoms, seriously retarding the restoration of the patient to health. In all, there will be a lack of nerve-power, from the hydræmic state of the circulation. Hence, could we, temporarily, augment the stimulating properties of the blood

whilst we are administering the iron, we should prepare the way and present the conditions required for its assimilation, which otherwise might be impossible. Experience has taught most physicians this practical fact, and the indications have usually been fulfilled by the simultaneous use of wine and iron. We have found the pyrophosphate singularly appropriate under these circumstances, and as superior as a natural excitant must ever be over any substitute we may devise. Persons who have been overworked by mental application and prostrated by disquietude and care, or persons who have a shattered nerve-power from some constant source of bodily suffering, have a thousand anomalous symptoms dependent on an imperfectly generated and distributed nerve-power, such as wakefulness, trembling, spasmodic movements, palpitations, etc. For this class of symptoms, the pyrophosphate of iron often affords relief in two or three days, and thus prepares the way for the ultimate cure that may be expected from the martial salts. Many times patients have expressed wonder at the calming and tranquilizing effects of the medicine, not only in mere functional aberrations and irregularities, but also in cases where actual disease existed in the nerve-centres. In both instances, the stimulation is immediate and transient, and can be of no avail, excepting by removing irregular nervous distribution ; whilst the iron is appropriated more readily by the organic forces, now freed from a great source of disorder.

## SUCCESSFUL CASES.

A lady in Brooklyn, with spinal meningitis in the cervical region, had great feebleness and trembling, but especially paroxysms of an asthmatic shortness of breath, that greatly interfered with the aëration of the blood. The first trial with this remedy removed in a few days the severity of the symptoms, so much so that the patient was enabled to leave her bed. Her breathing was hurried only on exertion. The remedy becoming less potent in subsequent attacks, and then eventually quite useless, was abandoned, and other means were resorted to with the same ill success. The patient, after being under my care without benefit for three months, moved into the country, and nothing has been heard of her since. In other instances of anæmia, where time showed an organic basis for the nervousness, a temporary advantage has been gained by this form of iron, showing the stimulation afforded by it to the brain and spinal marrow. This stimulation, although only temporary, is of permanent value in all functional disorders of the nerve-power, where, in the mean time, we can rectify the states on which they are dependent. This is shown markedly in anæmia and chorea united.

A young girl, aged 16, presented herself at the Hospital Clinique with the symptoms of anæmia, amenorrhœa, and chorea. She had been unwell at two periods four months ago ; but since then her turns had failed, and



she had become affected by these involuntary motions, which were now so great and uncontrollable as nearly to forbid her standing or walking. She was ordered laxatives for the constipation, which was obstinate, and the pyrophosphate of iron in five-grain doses after each meal. This was the only treatment, from first to last. Her appetite, which had been capricious and uncertain, returned ; the torpor of the bowels became less obstinate, and the involuntary jerkings of the muscles subsided to such a degree that the girl in two weeks walked to the hospital unattended. In six weeks the menses returned ; when the choreic movements, which had become moderate, were greatly increased during their continuance. In the interval, there was a continuous improvement, as the color of the face returned ; but only a slight exacerbation during the next period. In three months, the restoration to health was perfect. Perhaps the common forms of iron, as I have seen in two or three instances, might have been efficacious and attended with success ; but I am confident the first stage of cure would have been more tedious, from the constant muscular action which exhausts the patient. By the tranquilizing power of the phosphoric acid, the movements were moderated ; the patient was enabled to fall asleep readily, which she could not do before, and the assimilation was strengthened, so that food and iron rapidly improved the blood.

In one other case of chorea and anæmia, the same happy result followed this course of treatment.

*PALPITATION OF THE HEART IN ANÆMIA*

In palpitation of the heart in anæmic subjects, I have seen many instances of the power of this remedy in removing this symptom long before the blood was restored to its normal condition. But palpitation, when not due to impoverished blood entirely, may be, oftentimes, equally amenable to this remedy.

A lady of Brooklyn, 45 years of age, feeble, emaciated, and the subject of paralysis agitans for many years, was tormented by an aggravated form of palpitation of the heart. This, at times, was very severe and persistent, and never benefited by a variety of medicines prescribed by different physicians. The cause of this irregular and tumultuous action was evidently due to a defect in the nervous influence. The pyrophosphate of iron gave her the most prompt and perfect relief, so much so that she sent a person affected with this disease to my office to obtain the same prescription. In this case, also, the result was equally satisfactory.

In even more grave disorders of the heart, the value of this remedy has been signally shown.

*ANGINA PECTORIS*

A young gentleman, 23 years of age, came to my office suffering fearfully from angina pectoris. He was first attacked five years previously, while in the country, and was obliged to give up his employment and travel

for his health. After six months' respite, he obtained some relief; but from that time he had been followed by returns of the paroxysms at frequent intervals, though these were less severe, until of late, when they had become more grave than ever before. There was a sense of agony; a fear of impending death; and he was conscious of an irregular, tumultuous, labored throbbing of his heart, even in sleep, which was fitful, unrefreshing, and disturbed by frightful dreams. His countenance was haggard, and bespoke the utmost dejection; and he felt as though his chest was tightly bound by a cord, and as if each pulsation of his heart would be the last.

On examination, no organic disease could be discovered. The heart contracted tumultuously—by fits and starts—with a rolling, tumbling, uncertain action, but spasmodically, and with a sharp, metallic ring. The pulse was irregular and intermittent, and the volume of blood in the artery was uncertain and unequal.

#### GASTRALGIA AND HEPATITIS.

Latterly the young man had been employed in a wholesale dry-goods store, in New-York, and had passed most of the day on an underground floor. As he appeared to suffer from considerable gastric and hepatic disorder, two cathartic doses of blue mass were given, and followed by vegetable bitters and antacids.

These failing, he was ordered assafoetida, valerian, camphor, etc., with the like unsuccessful result. At this time, two weeks from his first visit, he was so much worse that he fell on the floor insensible one afternoon after returning home from his business. He was now directed to take the pyrophosphate of iron, in five grain doses, three times daily, and to omit all other medicines whatsoever. The patient remained under the same circumstances as to air, diet, exercise, etc., and still persisted, from a fear of losing his situation, in going to the store every day. There was a sensible amelioration in the severity of his symptoms almost immediately, and this became very apparent in four or five days. Insensibly he began to sleep with tolerable comfort, and to experience a more regular and equable action of the heart. At times, he would lose a sense of his condition, which ever had followed him like a malignant spirit. The change in his countenance, in the state of his pulse, and rhythm of his heart, as discovered by auscultation, was remarkable. The improvement was steady, but rapid, until the restoration to health was complete, which took place in four weeks without any change in, or addition to, the prescription. Now, after an interval of more than two years, he remains in perfect health, and was enabled to rush to arms, with thousands of other compatriots, for the defense of the old flag and the Constitution of our fathers. He endured three months' service as readily as the others. Since

his return, I found, on examination, that his heart acts perfectly and normally.

A young married woman, never pregnant, 34 years of age, was admitted into the hospital a year since. She was thought by her physicians to have an aggravated organic heart disease, that had nearly run its course. Her present illness dated back some eight months, and apparently commenced with gastric and hepatic disorder, which gradually induced despondency, nervousness, and palpitation of the heart. She had a sallow complexion, loaded tongue, vomiting, which was frequent, of a bitter matter; a strong, tumultuous, and irregular action of the heart, with a metallic ring; a sense of great suffering, and a fear of impending death. She was gloomy, hopeless, hysterical, with many shifting neuralgic pains. Shortly before her admission she lost the use of her lower extremities—could not stand, though when in bed she could draw up her feet, but with great effort and difficulty. I could discover in her case no evidences of organic disease, and was inclined to think that when the functional disorders of the liver and digestive organs were corrected, it would be possible to mitigate, at least, the irregular action of the nervous system, which was supposed to be mostly of a hysterical character. A variety of means, such as blue mass, bismuth, creosote, quinine, and bitters, was employed, for two weeks or more, to correct the state of the stomach, check the vomiting, and restore the digestion

—which objects were partially attained ; but the nerve-aberrations continued the same as at first. The pyrophosphate was now given conjointly with vegetable bitters and good diet. The same happy result followed as in the last case. Gradually the use of her limbs, and the regular, natural action of her heart were regained, though, from the hysterical element in her case, the restoration to health was not as perfect or permanent as that of the young man just mentioned. She dwelt constantly on her troubles ; and being much alone and neglectful of exercise, she relapsed, six months after dismissal, and was again treated in the same way, and in three weeks regained her usual health. During the following month I was called to her house, and found her with the old symptoms, which she said had been coming on ever since the absence of her husband in the army. She requested the same medicine which had, on other occasions, been followed by such marked relief to her symptoms. Its power was equally apparent as before.

For all the varied and anomalous symptoms of hysterical patients, which are usually some phase of irregular distribution of the nervous influence, the pyrophosphate acts with singular efficiency, diffusing and equalizing nerve-power, and thus secondarily restoring a more active capillary circulation and a more healthful play of all the functions. Cases illustrative of this point are unnecessary in the milder forms of nervous disease,



since the claims of our remedy are sufficiently vindicated in the severer ones hitherto mentioned.

#### ADAPTABILITY TO THE STOMACH.

The pyrophosphate of iron has another property scarcely to be anticipated, and one we should never discover except by actual observation. All of the common preparations of iron are apt to oppress the stomach, coat the tongue, and destroy the appetite, especially when the patient is much debilitated. Many, from a delicate, sensitive organization, can not under any circumstances take iron with profit—it being, in their language, too heating. The pyrophosphate is friendly to the stomach, will never cause any irritation of the gastric surfaces, and, to our knowledge, has never disagreed with any patient, however incompatible the other forms may have been. Besides, it appears to possess a tonic power, and will restore the appetite and digestion after the failure of bitters, quinine, wine, etc., often in extreme cases of anæmia, amenorrhœa, and chlorosis, as we have witnessed in many instances in our obstetric clinique. It seemed to afford just the grade of stimulus required by the stomach; and the improvement, thus initiated, continued without interruption, under this single remedy, to the complete cure of the patients. This acceptability, friendliness, corrigent, and roborant action of this form of iron on the digestive organs, is a valuable pecu-

liarity, which renders it, in many persons and in many states of disease, superior to all others, and perhaps to any drug whatsoever. Besides, its tastelessness, when dissolved in syrup, is a great recommendation in this age of sugar, when patients desire to die *sweetly*, and will not endure any thing nauseous or unpleasant, though Death be knocking at the door. This we might expect in children who *bring* up their parents to a tolerably high state of discipline, and issue their orders of command from the cabinet councils of the nursery. We medical men, taking the world as we find it, are obliged to render our doses as palatable as possible for babies, both great and small. This object, without detriment in the choice of our means, is singularly and notably attained by the use of the pyrophosphate of iron.



CASWELL, HAZARD & CO.'S

FERRO-PHOSPHORATED ELIXIR

OF

CALISAYA BARK.

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THE FERRO-PHOSPHORATED ELIXIR OF CALISAYA BARK of CASWELL, HAZARD & CO. contains one grain of the Pyrophosphate of Iron to one tea-spoonful of the Elixir.

It is entirely free from the nauseous, inky taste of iron. Combined with aromatics, the Salt and the Calisaya are blended in a beautiful transparent amber-colored cordial, very pleasant to the taste. It is readily administered to infants and children, and is quite acceptable to the most fastidious taste and delicate stomach.

The Elixir is furnished in bottles containing one pint; or it can be furnished in bulk in large bottles containing five pints, or by the gallon in demijohns, and sent by express to any part of the country.

Caswell, Hazard & Co. ship large quantities of the Elixir to San Francisco, New-Orleans, Montreal, Boston, Newbern, Port Royal, and dispense it in New-York from their counter. In all these places the medical professional indorse it as the most elegant and efficient of all tonics.

As a remedy for Nervous and Mental Prostration, Dyspepsia, Anæmia, Amenorrhœa, Dysmenorrhœa, Chorea, Angina Pectoris, Neuralgia, Chlorosis, Leucorrhœa, Wakefulness, Disquietude of Mind, Palpitation of the Heart, it has been found eminently serviceable and successful.

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CASWELL, HAZARD & CO.,

LATE

CASWELL, MACK & CO.,

FAMILY CHEMISTS,

*Fifth Avenue, Broadway and Twenty-fourth St.,*

(FIFTH AVENUE HOTEL,) NEW-YORK CITY,

AND

NO. 132 THAMES STREET, NEWPORT, R. I.

# HAZARD & CASWELL'S PURE COD-LIVER OIL.

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THE universal demand for an article of Cod-Liver Oil that could be depended upon as *strictly pure*, and *scientifically prepared*, having been long felt by the Medical Profession, we were induced to undertake its manufacture at the Fishing Stations, where the fish are brought to land every few hours, and the livers, consequently, are in great perfection. Its manufacture is personally superintended by our Mr. Caswell, and every gallon made is closely scrutinized.

Especial attention is directed to the purity of our Cod-Liver Oil. Manufactured as it is by us on the sea-shore of New-England from fresh, healthy livers of the *Gadus Morrhua*, it is characterized by peculiar sweetness, purity, and transparency, which have long made it a favorite with the profession of New-York and New-England, where it is known as HAZARD & CASWELL'S COD-LIVER OIL. When other oils can not be held upon the stomach, or by their rancid nauseousness so offend the delicate palate as to render it impossible for the patient to swallow them, our Oil is found by its sweetness capable of being readily taken and kindly received by the stomach.

This Oil is confidently recommended to the Trade and Medical Profession as the SWEETEST and PUREST in market.

Professor Parker, of New-York, says: "I have tried almost every other manufacturer's oil, and give yours the decided preference."

Professor Hays, State Assayer of Massachusetts, says of it, after subjecting a sample to chemical analysis: "It is the best for foreign or domestic use."

MANUFACTURED BY

CASWELL, HAZARD & CO.,

SUCCESSORS TO

CASWELL, MACK & CO., New-York.

# COD-LIVER OIL

WITH

IODINE, PHOSPHORUS, AND BROMINE.



THIS preparation represents PHOSPHORUS, BROMINE, IODINE, and COD-LIVER OIL in a state of permanent combination.

Its advantage over simple Cod-Liver Oil lies in the fact that a much smaller dose of the Oil is necessary, while at the same time it is charged with four or five times the amount of Phosphorus and Iodine found in the natural oil.

Bound indissolubly with Hazard & Caswell's pure straw-colored Cod-Liver Oil—an oil manufactured on the sea-shore from fresh, healthy livers of the *Gadus Morrhua*—an oil now recognized by the Profession as unexcelled, if it is equaled, in beauty of color, in transparency and freedom from precipitate, in purity, sweetness, and palatableness by any oil in the market—the Phosphorus and Iodine are carried directly with the Oil into the blood and there decomposed.

The following table gives the proportions and constituents of one pint of our COD-LIVER OIL WITH IODINE, PHOSPHORUS, AND BROMINE :

IODINE,	. . . . .	Eight Grains.
BROMINE,	. . . . .	One Grain.
PHOSPHORUS,	. . . . .	One Grain.
COD-LIVER OIL,	. . . . .	One Pint.

No remedy is better adapted to the treatment of all disordered conditions of the nervous system, attended by pulmonary complaints or enfeebled digestive power.

The COD-LIVER OIL WITH IODINE, PHOSPHORUS, AND BROMINE supplies a desideratum in cases where the presence of Iron in our Iodo-Ferrated Cod-Liver Oil may be contraindicated.

The dose is from a dessert to a table-spoonful for adults, and from one to one quarter of a tea-spoonful for children.

It should be given either immediately or three or four hours after each meal.

Orange or lemon juice, ale, sherry wine, constitute good vehicles for its administration, if these are deemed necessary.

MANUFACTURERS,

CASWELL, HAZARD & CO.,

FAMILY AND DISPENSING CHEMISTS,

New-York City.



# ODO-FERRATED COD-LIVER OIL.

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AN elegant combination of Iron, Iodine, and Cod-Liver Oil has long been a desideratum with the profession.

After a prolonged series of experiments, we are happy to announce to the Profession our success in the production of a compound holding these remedies in a state of permanent and thorough combination.

Our ODO-FERRATED COD-LIVER OIL is a perfectly transparent golden-colored preparation, and possessing no more taste than is usual with perfectly sweet and fresh Cod-Liver Oil.

Each tea-spoonful contains one half grain of Iodide of Iron.

It has been ascertained by eminent European physiologists, such as Tiedemann, Landras, Corvisart, and Bouchardat, that Cod-Liver Oil requires only to be emulsified by the pancreatic juice to be received directly and undecomposed into the blood.

Bearing this important fact in view, the physician will readily understand how invaluable a permanent combination like ours of such remedies as Iron and Iodine, bound closely with Cod-Liver Oil as they are, will prove, since thereby the Iodine and Iron are borne, unchanged, into the blood and there decomposed.

For all Scrofulous and Tubercular Affections, Anæmia, Debility, Consumption, Rheumatism, Spinal Disease, Rickets, Marasmus, Ulcers, Hip Complaints, Eruptions, Amenorrhœa, Leucorrhœa, Chlorosis, Palpitation of the Heart, the medical practitioner will find this ODO-FERRATED COD-LIVER OIL of invaluable service.

The dose of the ODO-FERRATED COD-LIVER OIL ranges from a dessert to a table-spoonful for adults, and from one to one quarter of a tea-spoonful for children. It should be given after each meal, or if it then be found to disagree with the digestion, three or four hours afterward. Orange or lemon juice, sherry wine, ale, porter, are good vehicles in which to administer it if such are necessary. A little salt placed upon the tongue immediately before taking is advised by Bouchardat.

A striking advantage of the Iodo-Ferrated over simple Cod-Liver Oil is that a much less quantity of it suffices for a dose than the latter, since the ODO-FERRATED COD-LIVER OIL contains four or five times the amount of Iodine found in the natural oil.

In cases where the presence of iron may be considered an objectionable feature in our ODO-FERRATED COD-LIVER OIL, we respectfully direct the attention of the Profession to our preparation known as Cod-Liver Oil with Iodine, Phosphorus, and Bromine, a description of which is to be found on the preceding page.

MANUFACTURED ONLY BY

CASWELL, HAZARD & CO.

*DESCRIPTIVE LIST*

OF

PHARMACEUTICAL PREPARATIONS,

MANUFACTURED BY

CASWELL, HAZARD & CO.,

*FAMILY AND DISPENSING CHEMISTS,*

UNDER FIFTH AVENUE HOTEL, NEW-YORK CITY,

AND

No. 132 THAMES STREET, NEWPORT, R. I.

—•••—

FERRO-PHOSPHORATED

ELIXIR OF CALISAYA BARK.

Made *directly* from the Bark, *not from its Alkaloids or their Salts.*

This preparation, embracing the three best tonics of the Pharmacopœia—IRON, PHOSPHORUS, and CALISAYA—we were the first to introduce to the medical profession in the year 1860.

Supplying a great want, there being at that time no combination of these remedies, our preparation was cordially welcomed and adopted by the first practitioners, and it is now recognized by the profession generally as a standard tonic.

Encouraged by this success, other houses have imitated it, but no imitations have equaled the original in elegance of combination, gratefulness of taste, or efficiency of action.

The following formula represents the composition of one pint of the ELIXIR.

Fluid Extract of Cinchona-Calisaya, (full strength),	3 i.
“ “ True Cinnamon, . . . . .	3 ii.
“ “ Caraway Seeds, . . . . .	3 i.
“ “ Sweet Orange, . . . . .	3 i.
Pyrophosphate of Iron, . . . . .	128 grains.
Simple Syrup, . . . . .	3 iii.
Best Brandy, . . . . .	3 ii.
Whisky, . . . . .	3 ii.
Pure Spirits and Water, . . . . .	3 vii.

## Descriptive List.

It will be seen that each table-spoonful contains the following equivalents as existing naturally in the Bark :

Quinia, . . . . .	About three quarters of a grain.
Cinchona, . . . . .	" quarter of a grain.
• The other alkaloids, . . . . .	" " "

Dose.—Adult, from a tea to a desert-spoonful, before or after each meal.

The Pyrophosphate of Iron was first brought to notice in 1856, by Robiquet, of Paris, where it received the approbation of the French Academy.

The advantages of this form of Iron are, that it causes none of those irritations to the stomach and alimentary canal common to other preparations of Iron ; it is readily assimilated, friendly to the stomach, and tonic to the digestive and cerebral organs.

In our Ferro-Phosphorated Elixir of Calisaya, the profession have a transparent, amber-colored cordial, attractive to the eye, pleasant to the taste, and acceptable to the stomach.

Administered to the pale, the nervous, the debilitated, the practitioner will find the Elixir of invaluable service. Its IRON enriches the blood ; its PHOSPHORUS renews wasted nerve-tissue ; and its CALISAYA gives tone to the digestive organs.

## AMMONIA-CITRATE OF BISMUTH.

The subject of a soluble preparation of Bismuth was first suggested by Mr. C. R. C. Tickborne, (*London Pharm. Journal*, 1864,) and soon after a formula was published in the same journal by Mr. N. Gray Bartlett.

This solution is not incompatible with carbonated alkalies, mineral acids, or tonic infusions and tinctures.

It is a valuable remedy for Gastro-Intestinal Affections, Diarrhœa, and Nausea. Each tea-spoonful contains two grains of Bismuth.

## SIMPLE ELIXIR OF CALISAYA BARK.

Unlike many preparations bearing this name, which are only pleasant cordials, containing not a grain of Peruvian Bark, this article has the strength of one ounce of true CALISAYA BARK to one pint, so combined with aromatics as to lose its intense bitterness, while its efficiency is thereby the more completely developed.

For Fever and Ague it is a valuable preventive, and not open to the objections brought against Quinine ; and for General Debility, Nervous Prostration, and Dyspepsia, it is an effectual remedy.

In cases where our Ferro-Phosphorated Elixir of Calisaya Bark may be objectionable, on account of its ferruginous qualities, this preparation will be found a satisfactory substitute.

## *Descriptive List.*

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### FERRO-PHOSPHORATED

#### ELIXIR OF CALISAYA WITH BISMUTH.

In order to adapt our FERRO-PHOSPHORATED ELIXIR OF CALISAYA specially to gastric difficulties, we manufacture a combination of the Elixir with AMMONIA-CITRATE OF BISMUTH.

It will be found serviceable in the treatment of gastralgia following the phlegmasias of the digestive organs, attended with a red tongue, laborious digestion, acid eructations, nausea, and for acidity, debility, anemia, and nervous derangements.

Each dessert-spoonful contains four grains of Bismuth; Pyrophosphate of Iron, four grains; and two grains of extractive matter of Calisaya Bark

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### FERRO-PHOSPHORATED

#### ELIXIR OF CALISAYA BARK WITH STRYCHNIA.

This preparation contains one grain of Sulphate of Strychnia added to each pint of our FERRO-PHOSPHORATED ELIXIR OF CALISAYA BARK, greatly intensifying its tonic effects.

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### DRAGÉES OF

#### PYROPHOSPHATE OF IRON AND CALISAYA.

For the convenience of those living at a distance, or for persons traveling, where the bulkiness of the FERRO-PHOSPHORATED ELIXIR OF CALISAYA would be inconvenient, we manufacture a pill of Pyrophosphate of Iron and Extract of Calisaya. This pill contains three grains of the two remedies, is coated with gelatine and sugar, is unaffected by climate, and perfectly palatable.

Each pill contains: Extract of Cinchona-Calisaya, two grains; Pyrophosphate of Iron, one grain.

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#### DRAGÉES OF PYROPHOSPHATE OF IRON.

We manufacture a sugar-coated pill of Pyrophosphate of Iron, which offers a very convenient form for the administration of this admirable tonic.

These pills are eminently serviceable in cases of Nervous Prostration, Dyspepsia, Anæmia, Amenorrhœa, Dysmenorrhœa, Chorea, Angina Pectoris, Neuralgia, Chlorosis, Leucorrhœa, Wakefulness, Disquietude of Mind, and Palpitation of the Heart.

Each pill contains two grains of Pyrophosphate of Iron.

## *Descriptive List.*

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### ELIXIR OF VALERIANATE OF AMMONIA.

IN OUR ELIXIR OF VALERIANATE OF AMMONIA the intense odor and disagreeable taste of Valerianic Acid are overcome without injury to its therapeutic qualities. This Elixir presents the virtues of Valerian in a palatable form.

One tea-spoonful contains one and one half grains of the Salt.

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### ELIXIR OF LUPULINE.

THE ELIXIR OF LUPULINE contains the virtues of Lupuline in pleasant combination with aromatics.

It has the same properties as the Elixir of Valerianate of Ammonia, and can be administered in cases where the former may not be desired.

One tea-spoonful contains the virtue of eight grains of Lupuline.

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### WINE OF PEPSIN.

WE prepare a WINE OF PEPSIN, by macerating carefully selected and cleansed Calves' Rennets with Sherry Wine.

This preparation is held in high esteem by some of the first practitioners for enfeebled and difficult digestion. A few drops of Muriatic Acid are frequently added when it is desired to increase the digestive power of the Wine.

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## JUNIPER TAR SOAP.

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THIS article, manufactured by ourselves, is used by the first practitioners in New-York with excellent success in cutaneous affections.

The Juniper Tar is an effective stimulant, acting upon the absorbents like mercury, without the deleterious influences of that remedy.

The Juniper Tar is combined with pure bland Soap, in which form it is conveniently applied to the skin, which under its use becomes soft and clear and free from irritability.

 COMPLAINTS FREQUENTLY REACH US FROM PHYSICIANS THAT THEIR PRESCRIPTIONS CALLING FOR OUR PREPARATIONS PROVE INERT. WE WOULD THEREFORE SUGGEST THAT OUR PREPARATIONS BE PARTICULARLY SPECIFIED, AS MANY DRUGGISTS ARE IN THE HABIT OF SUBSTITUTING THEIR OWN.

*Samples of any of the above Preparations will be furnished without charge to Physicians.*















